

sylvania early in the forties, while still a professor at Girard College, where he also established the first magnetic and meteorological observatory in this country; John Locke, the inventor of the electro-chronograph (which by the way is unique in the history of science in this country as being the only scientific invention, I believe, receiving an award from our Congress, viz, \$10,000), in the thirties and forties undertook a magnetic survey of North America with Cincinnati as a base station. He even extended his investigations into Canadian territory and made many of the early observations of the three magnetic elements in the Eastern States. Locke was a contemporary of the astronomer Mitchel, holding the chair of professor of chemistry (inclusive of physics) and pharmacy at the Ohio Medical College. He lived at the time when the college professor frequently had to acquire his instruments of research and pay the expenses of his experiments out of his own meager salary. Yet he found ways of doing it and, moreover, seemingly had the necessary time to go beyond his classroom and extend his good work in the territory round about and far away.

Loomis's work on the aurora borealis is still quoted. The contributions to meteorology by Espy, Redfield, Coffin, Maury, and Loomis are known even to those of us who do not profess to be meteorologists. These few illustrations must suffice for our present purpose.

If the American college professor lacks the necessary time and incentive during the scholastic year, why doesn't he do as Bache, Loomis, and Nipher did, who spent their vacations in the open in order to learn something of the physical laws governing mutual phenomena?

Why is it that in spite of the truly wonderful spirit of research that has literally seized us in this country there are so few to be enrolled among those who are making definite contributions to terrestrial and cosmical physics? We find the American physicist very prominently represented, indeed, in astronomy and astrophysics. May we not hope that he will soon realize that this planet on which we dwell and which must form the basis of all our astronomical speculations is also worthy of the highest and most unselfish devotion? That, indeed, to reap the full and most lasting benefit of our celestial researches we must keep equal pace with our terrestrial ones! Will he not recall that nearly every one of the great physicists he is so justly proud of citing has at one time or another extended his mental vision beyond the problems immediately before him and considered what the application of his laboratory discoveries might be toward solving some of the riddles of the universe, or how he might benefit mankind? Faraday, Maxwell, Kelvin, von Helmholtz, Hertz, Mascart, Langley, and Rowland are but a few of the inspiring names.

Happily, there are already some indications of a reawakening and we note with pleasure the example recently set by the retiring president of the Association (Prof. E. L. Nichols), who turned his sabbatical year to fruitful use in the study of some perplexing atmospheric phenomena, and whose retiring address was largely devoted to terrestrial and cosmical physics. We note movements at some of our large universities to expand their graduate courses in the direction of terrestrial and cosmical physics. There were twelve papers before sections A and B on the subjects under discussion.

Von Helmholtz, as many of you know, from actual experience, was a notoriously poor lecturer. He seemed utterly incapable of imparting his vast knowledge in any systematic manner, and doubtless the chief value which his listeners got was the inspiration imparted by class room association with this gifted man. Von Bezold, who delivered the Berlin memorial address on von Helmholtz, told me the latter gave as the reason of his inability to impart his acquired knowledge methodically, was because he, himself, had not gained it in that way. He would take up his mathematics, for example,

only when he required it—not by going systematically and consistently thru a volume of higher analysis without some impelling or suggesting motive. And so it was with the other sciences with which he had to familiarize himself in order to push to successful completion an intricate and complex piece of research. Yet how truly marvelous was the grasp this man displayed in so many varied subjects!

Now who that has ever attempted to apply his knowledge to fields outside his own immediate one has not felt this same irresistible, impelling, burning desire to know all that had been done before him in the new country he is about to explore? Have not we each one of us found that with such an all-conquering impetus back of us, the most complex mathematics or the most abstruse subject teems with a new and living interest? What was irksome before has now become a pleasure. And if there is one of you who for lack of excursions into such green pastures, has not had new and invigorating blood course thru his veins and has not been given a glimpse of a higher, truer, and more ennobling vision of life, he has missed the greatest pleasure and the highest compensation open to the research worker!

Do you know of a school of thought that has prevailed for any length of time without resisting that most subtle and therefore most dangerous of all insidious modes of attack, viz, the one coming from within its own fold of devotees, due to the pernicious habit of in-breeding? Is there any greater danger than that which besets a university that fills its chairs repeatedly from among its own graduates? We all know of the fallacy of the brilliant professor who thinks his ideas can be made to continue longest by surrounding himself with assistants drawn, if not entirely, at least chiefly, from among his own disciples. Will he not surely find, as Maxwell put it, that his "system has closed him in before he is forty" because he has forgotten the element essential to prevent crystallization—the importation of fresh blood and the introduction of new ideas?

If you agree with the speaker thus far, may it not happen that precisely similar occurrences be recorded of our societies, because of the suicidal policy of a particular class of members who are apt to believe that the best result can be reached by increasing their representation, and thus by their majority vote be able to dictate and control the general policy of the society to which they belong? Is it a wise organization for membership in any deliberative scientific body to be so constituted as to make it possible for the act of the assembly to be unduly influenced by one set of investigators? Is there not here subject for careful thought—a source of degeneracy due to in-breeding in societies to be equally guarded against? Joseph Henry truly said: "Votes in science should not be counted, but weighed."

This, then, is my specific plea: A broader conception and a more scientific representation of the subjects of physical research. Could we not make the attempt certainly once a year to devote most of our time and attention to some of the greater aspects of our work and take stock, so to speak, of our achievements, and of their possible applications?

RETIREMENT OF PROFESSOR KLOSSOVSKII.

By Prof. ALEXANDER ZIWET, Ann Arbor, Mich. Dated February 6, 1909.

A. Klossovskii.—The last page of the journals "Meteorological Review" (Publications of the meteorological net of southwestern Russia, 1887–1908) and "Annals" of the magnetic and meteorological observatory of the Novorussian University [at Odessa], 1894–1908. Odessa, 1908. 8vo. VI. 84, 244, 104 pp., 2 plates.¹

¹ Page finale des journaux "Revue météorologique" (Travaux du réseau météorologique du sud-ouest de la Russie, 1887–1908) et "Annales" de l'observatoire météorologique et magnétique de l'université impériale à Odessa, fondés par A. Klossovsky. Odessa. 1908. v p. 80. (Russian text.)

As professor of physical geography in the University of Odessa, as organizer of a network of meteorological stations throughout southwestern Russia, and as director of the magnetic and meteorological observatory at Malyi-Fontan, near Odessa, Dr. A. Klossovskii has done valiant service in his chosen science. The present volume forms a worthy conclusion of his long-continued and efficient labors. In addition to a modest account by Professor Klossovskii of the rise and progress of the institutions under his charge, it contains a large amount of valuable material for the meteorology of southwestern Russia and a number of special scientific papers by some of his assistants. Among these may be mentioned; Tochidlovskii, On the formation of nuclei in fogs; Ignatiev, On the use of kites in meteorology; Obolenskii, On the theory

of the rainbow and of halos; and Aganin, A preliminary paper on gravity determinations at Odessa.

In view of the well known strong perturbation in the earth's magnetic field in the vicinity of Odessa it is of interest to know that careful gravity determinations are in progress.

It is certainly a matter of regret that the two journals created by Professor Klossovskii will not be continued. And it would be still more to be lamented if Professor Klossovskii can not find some means of continuing and completing his work on meteorology of which the first volume² (of 642 pp., with numerous illustrations and a map) appeared in 1907. It is to be hoped that now, in his retirement from active service, the author may find leisure to complete this great work which was planned to comprise three more volumes.

THE WEATHER OF THE MONTH.

By Mr. P. C. DAY, Acting Chief, Climatological Division.

PRESSURE AND WINDS.

The distribution of the mean atmospheric pressure for January, 1909, over the United States and Canada, is graphically shown on Chart VI, and the average values and departures from the normal are shown for each station in Tables I and III.

The mean atmospheric pressure for the month showed marked departures from normal conditions, the most important of which was an unusual depression over the central and northern portions of the Plateau and Pacific coast districts, where the average pressure ranged from .15 to .25 inch below the normal. It was also below the normal over practically all the remaining districts west of the Rocky Mountains, including the southern portions of British Columbia. East of the Rocky Mountains the average pressure for the month was above the normal in all districts of the United States and Canada, except over extreme southern Florida; the excess over the districts from the Lake region eastward ranging from .05 to .10 inch.

Many of the high pressure areas of the month appear to have had their origin in northern British Columbia west of the Main Divide instead of over the Great Plains to the east of the mountains, their usual point of origin. With pressure unusually low over the Plateau and Pacific coast districts, especially during the first half of the month, cold northerly winds from the high areas over northern British Columbia dominated the weather over the extreme northern portions of the United States from the Rocky Mountains to the Pacific.

Over the districts between the Rocky and Appalachian mountains the prevailing winds were mostly south, while along the Atlantic coast and over the east Gulf States they were generally from some northerly point. Much stormy weather, with cold, high northerly winds prevailed over the north Pacific and northern Plateau districts during the first half of the month.

TEMPERATURE.

January, 1909, was marked by unusual variations in temperature, decided excesses persisting in some localities and deficiencies of equal persistence occurring in others. During the first decade of the month remarkably cold weather prevailed over a restricted area from the Great Lakes westward to the Pacific, being most pronounced over the upper Missouri Valley and the northern portions of the Rocky Mountain, Plateau and Pacific coast districts, where the daily means ranged from 15° to 25° below the average. Minimum temperatures during portions of the above period were unusually low over the States from North Dakota to Washington, ranging from 20° to more than 50° below zero and exceeding in severity any previous record of cold weather for the same period at numerous points, especially in portions of eastern Washington and northern Oregon.

During this decade some unusually warm weather occurred over the districts from the Texas coast to the middle Plateau region and generally over the Southwest, where the mean temperature for the period ranged from 8° to 12° above the normal, and it was also above the normal over all eastern districts.

The second decade was marked by comparatively moderate temperatures over all districts, except over the States from Montana to Washington where extremely cold weather continued until about the 15th. The mean temperature was generally above the normal over the central and southern portions of the Rocky Mountain, Plateau, and Pacific coast districts, and also over most of the Atlantic and Gulf coast districts during the entire period.

During the third decade unusually warm weather was prevalent over all districts until about the 27th, when a severe storm developed over the Great Plains region and moved eastward during the last few days of the month, bringing the severest weather of the season to the districts from the lower Missouri Valley eastward over portions of the Lake region, Ohio Valley, and New England. Unusually warm weather prevailed from the 22d to the 25th over practically all districts from the middle and southern slope regions eastward to the Atlantic; the maximum temperatures during that period at numerous points equalled or exceeded any previous January record.

As a whole, the mean temperature for the month was above the normal over all districts, except a narrow strip along the northern border from central North Dakota westward to the Pacific. Over large portions of the Lake region, Ohio Valley, the Middle and South Atlantic, and Gulf States the average ranged from 5° to 7° above the normal, and over the region from the Texas coast northwestward to southern Idaho and eastern Oregon the average temperature ranged from 6° to 9° daily above the normal.

The remarkably restricted and persistent area of cold that prevailed over the northern portions of the States from North Dakota to Washington during the first half of the month carried the mean temperature for the section from 3° to 8° below the normal, despite the fact that the latter part of the month was unusually warm.

Maximum temperatures of 80°, or slightly higher, occurred from central Kansas southward over Texas, and in Georgia and Florida.

Minimum temperatures of 32° or lower extended to central Florida, central Arizona, and to nearly all districts in Cali-

² Klossovskii, A[leksandr]. *Meteorologiya*. (Obshechi kurs.) Chast I. Staticheskaya meteorologiya. [Meteorology. (General course.) Vol. I. Static meteorology.] Odessa. 1908. A long and appreciative review of this volume appears in *Petermann's Mitteilungen*, Jan., 1909, *Literaturbericht*, p. 17-19. If completed as planned, this will be the most extensive treatise on meteorology in any language.—C. F. T.